

# Marsh Vegetation Changes Occurring in the Rincon Bayou Delta: 2005-2016

## Image Acquisition and Ground Truthing

Sponsors: TWDB and CBBEP

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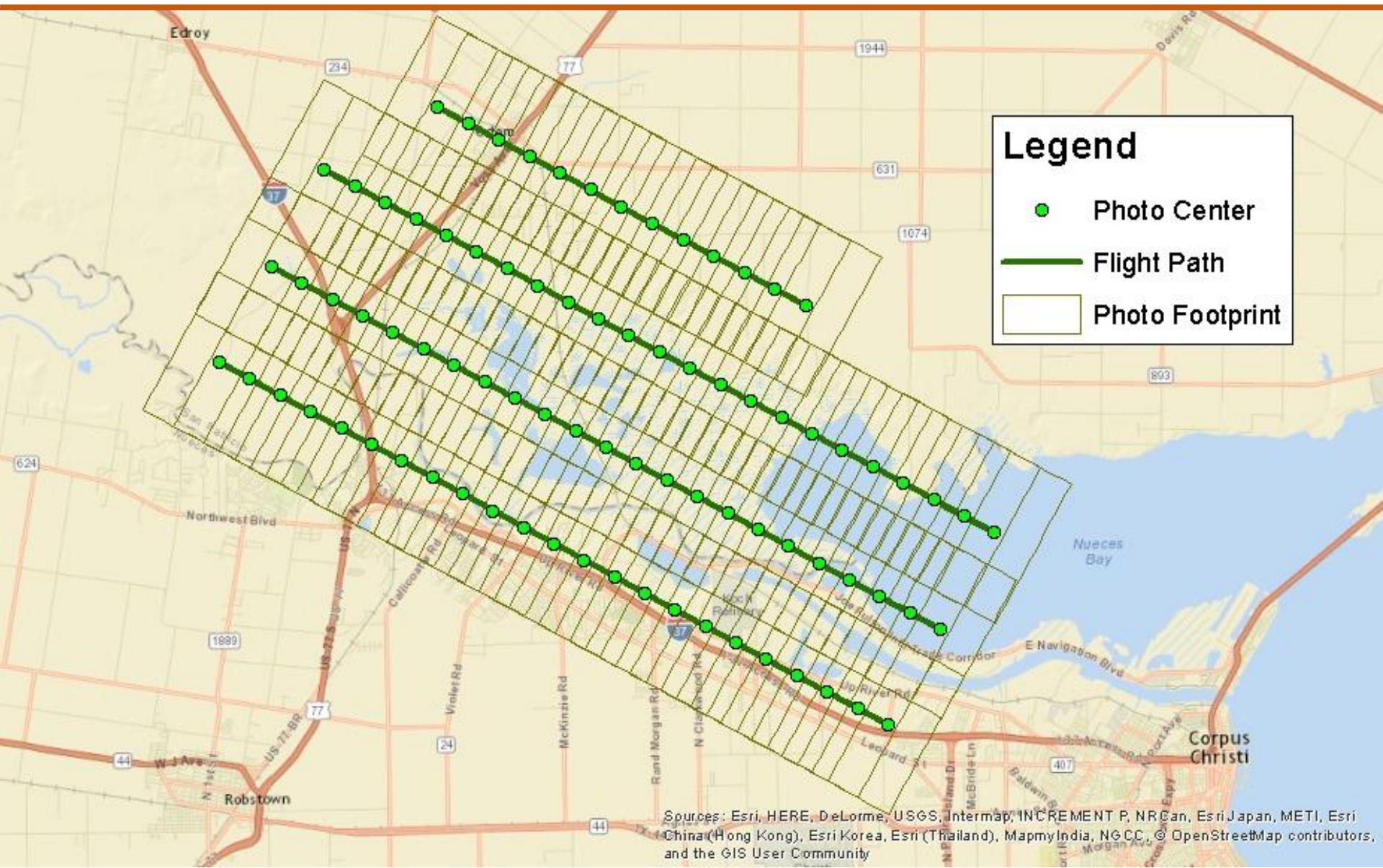
# Imagery Acquisition



- Performed by Quantum Spatial, Inc.
- 82 raw images collected on November 15, 2016 from FL100
- Shot with Z/I Digital Mapping Camera
- Orthorectified using camera calibration, airborne GPS/IMU and LiDAR
- Color IR GeoTIFFs delivered March, 2017
- Resolution of 1 foot (0.3 m) ground sample distance
- 12-bit pixel depth in R, G, B, and NIR bands
- 179 GB of images



# Flight Path and Footprints





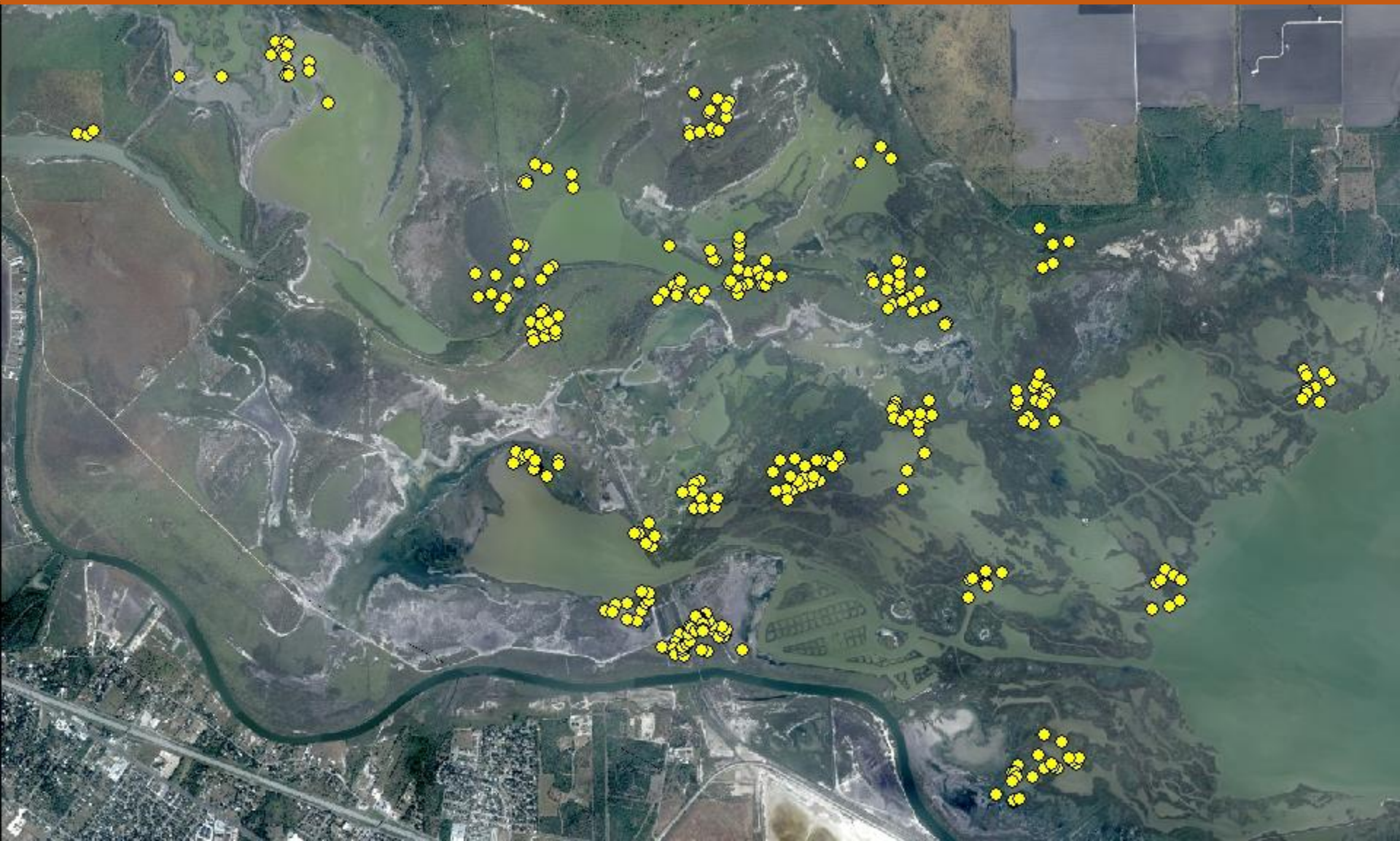
# Mosaic of 82 Images: November 2016



Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NCC, © OpenStreetMap contributors, and the GIS User Community



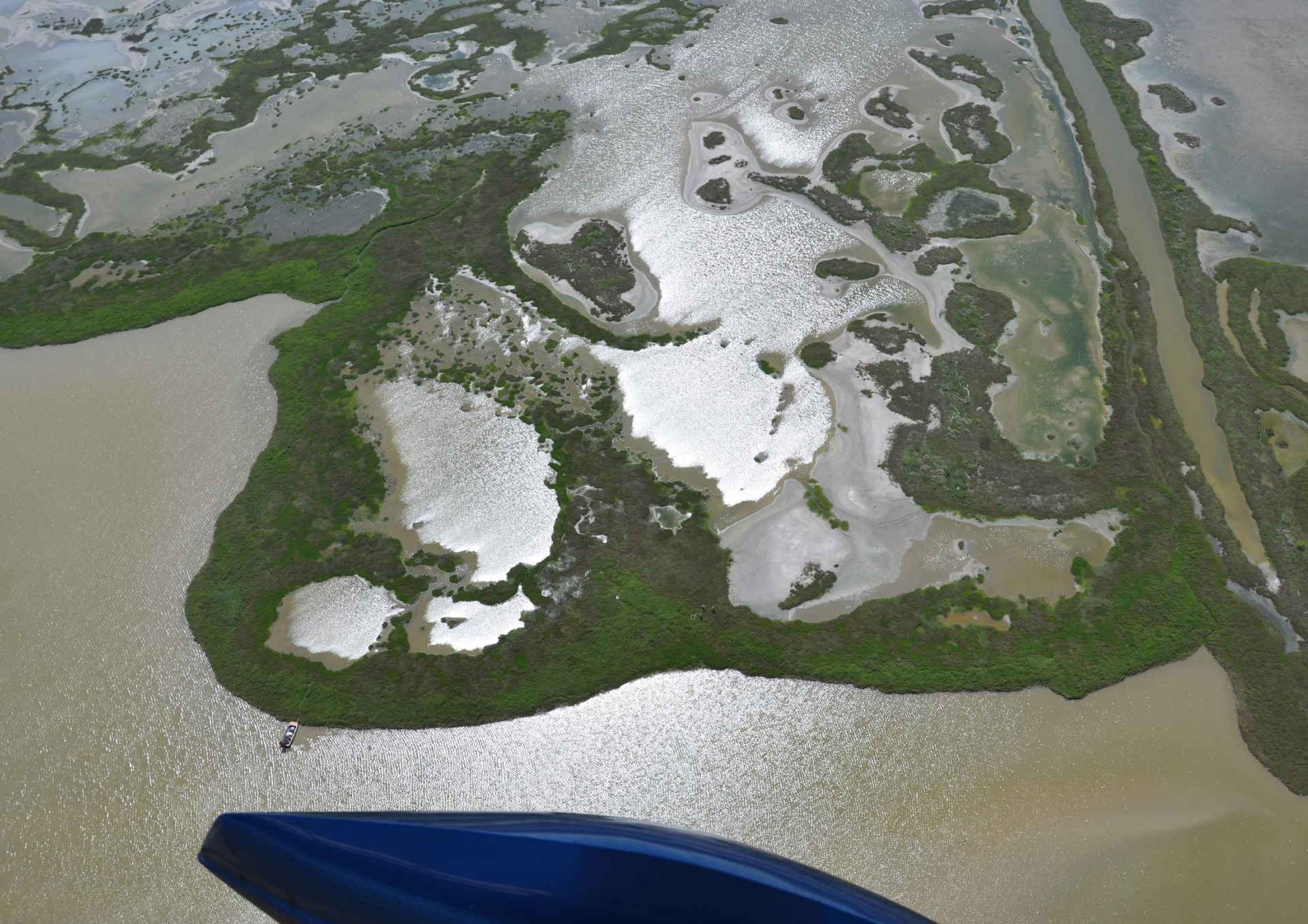
# 309 Ground Truth Sites Visited







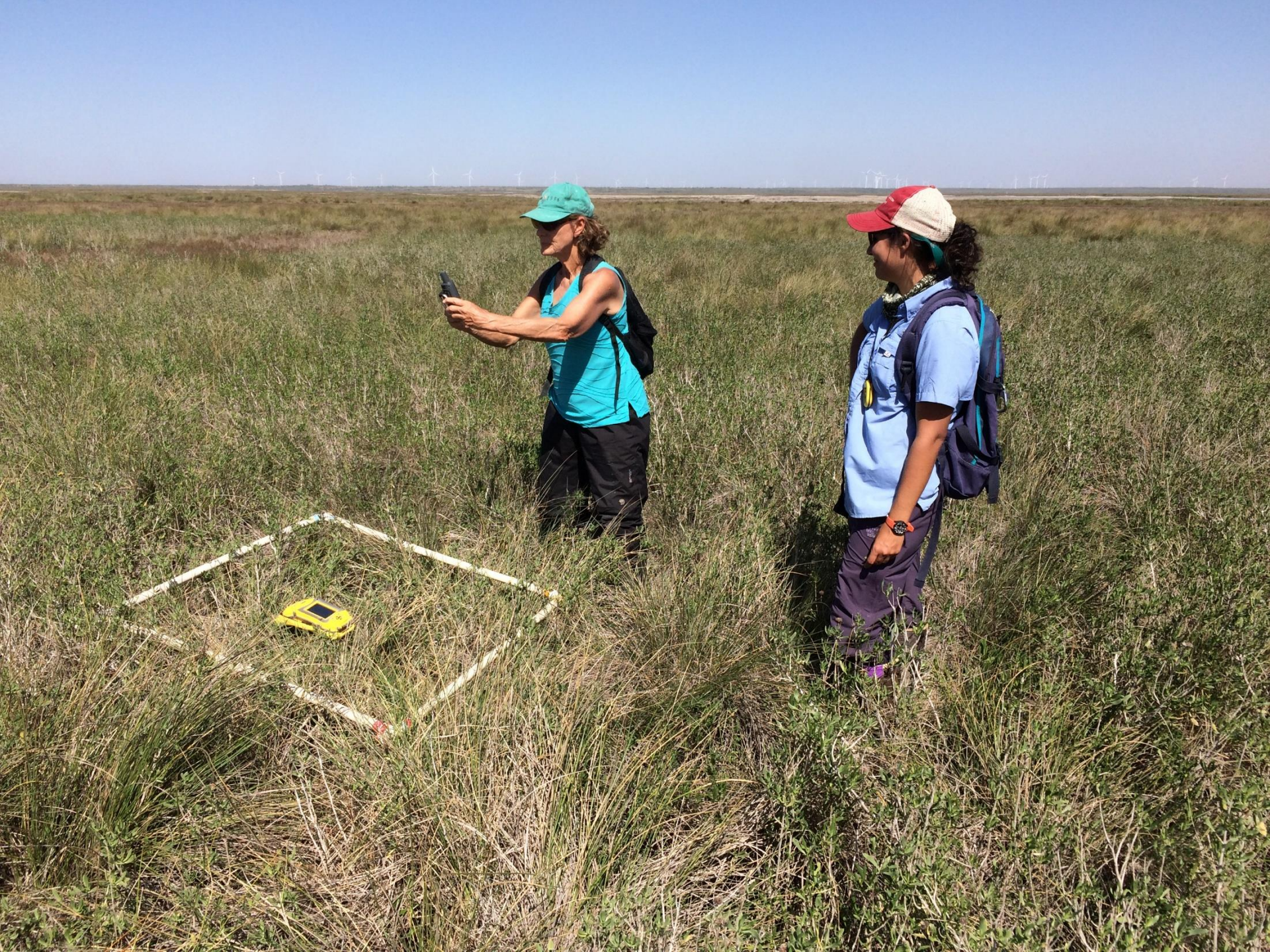














# Over 2000 Geotagged Photos





# Common Marsh Plant Species



*Borrichia frutescens*



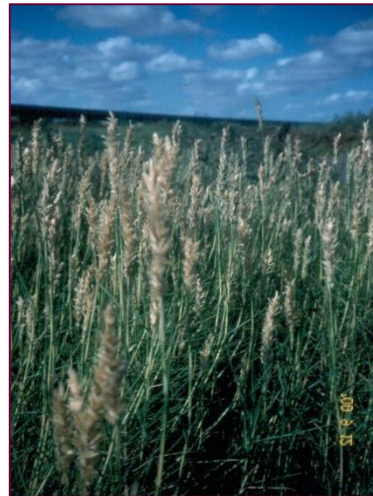
*Monanthocloe  
littoralis*



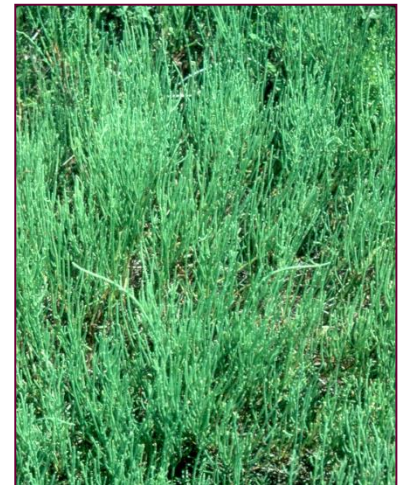
*Spartina alterniflora*



*Batis maritima*



*Distichlis spicata*



*Salicornia virginica*



# Next Steps



- Classify image following Rasser, 2009
  - Use ERDAS IMAGINE software
  - Produce GIS layer depicting areal distribution of common marsh plant species, non-vegetated land, and water areas
- Evaluate using ArcGIS for image classification
  - Image processing capabilities in GIS are now well developed
  - ArcGIS is more ubiquitous than IMAGINE and would be a practical choice for similar future studies
- Compare 1997-2005 coastlines
  - Map coastal erosion as per Rasser's CBBEP report: "Analysis of Coastal Erosion of the Nueces Delta Shoreline"



# Questions????

